Claims

1. An optical system comprising a first optical unit (10) and a first sensor unit (18) for sensing electromagnetic radiation, wherein the optical system is arranged such that incident electromagnetic radiation that originates from some scene (12) outside of the optical system can reach the first sensor unit (18) by passing via the first optical unit (10) and by following a beam path (20) from the first optical unit (10) to the first sensor unit (18), characterised in that the optical system also comprises a micromirror matrix unit (16) which comprises a large number of micromirror elements and which is arranged in said beam path (20), wherein the micromirror matrix unit (16) is arranged to be able to be set in at least a first and a second state, wherein in said first state the micromirror matrix unit (16) reflects said incident electromagnetic radiation which reaches the micromirror matrix unit (16) from the first optical unit (10) such that this electromagnetic radiation reaches the first sensor unit (18), wherein in said second state the micromirror matrix unit (16) reflects said incident electromagnetic radiation which reaches the micromirror matrix unit (16) from the first optical unit (10) such that this electromagnetic radiation does not reach the first sensor unit (18).

2. An optical system according to claim 1, wherein the first sensor unit (18) comprises a large number of sensor elements and is arranged to be positioned in an image plane in the optical system, which image plane is arranged to be able to constitute an image plane for said scene (12).

3. An optical system according to claim 2, wherein the first sensor unit (18) is such that said sensor elements are arranged as a two-dimensional array of sensor elements and wherein the optical system is constructed as a staring system.

4. An optical system according to claim 2 or 3, wherein said image plane, in which the first sensor unit (18) is positioned, is ar-

ranged in the optical system such that it constitutes an image plane for said scene (12) when said scene (12) is positioned at such a large distance from the optical system that rays from a point in said scene (12) reach the first optical unit (10) as at least substantially parallel rays.

5. An optical system according to any of the preceding claims, wherein the first sensor unit (18) is arranged to sense radiation within the infra-red wavelength range.

6. An optical system according to any of the preceding claims, comprising a second sensor unit (26) for sensing electromagnetic radiation arranged such that when the micromirror matrix unit (16) is set in a state which is different from said first state, the micromirror matrix unit (16) reflects said incident electromagnetic radiation which reaches the micromirror matrix unit (16) from the first optical unit (10) such that this electromagnetic radiation reaches the second sensor unit (26).

7. An optical system according to claim 6, wherein the micromirror matrix unit (16) is in said second state when it is set such that the incident electromagnetic radiation reaches the second sensor unit (26).

8. An optical system according to claim 6 or 7, wherein the second sensor unit (26) is of another kind than the first sensor unit (18), such that the second sensor unit (26) is less disposed to be destroyed by electromagnetic radiation than the first sensor unit (18).

9. An optical system according to any of the claims 6-8, wherein the second sensor unit (26) is a quadrant detector.

10. An optical system according to any of the claims 6-9, wherein the second sensor unit (26) is arranged in the optical system such that it is not arranged in an image plane for said scene (12), when said scene (12) is positioned at such a large distance from the opti-

cal system that rays from a point in said scene (12) reach the first optical unit (10) as at least substantially parallel rays.

11. An optical system according to any of the claims 6-10, arranged to prevent that incident electromagnetic radiation from said scene (12) is reflected back to this scene from the second sensor unit (26).

12. An optical system according to claim 11, comprising an optical isolator (30) in the beam path between the first optical unit (10) and the second sensor unit (26).

13. An optical system according to any of the preceding claims, comprising at least one reference source (22) for emitting electromagnetic radiation of a known kind, wherein this reference source (22) is arranged such that electromagnetic radiation from the reference source (22) reaches the first sensor unit (18) when the micromirror matrix unit (16) is set in a state which differs from said first state.

14. An optical system according to claim 13, wherein the reference source (22) is arranged such that electromagnetic radiation from the reference source (22) reaches the first sensor unit (18) when the micromirror matrix unit (16) is set in said second state.

15. An optical system according to any of the preceding claims, comprising a control unit (32) which controls at least the setting of said micromirror matrix unit (16).

16. An optical system according to claim 15, wherein the control unit (32) is also arranged to control the sensing of the first sensor unit (18), such that the first sensor unit (18) is sensed at a plurality of occasions per second and wherein the control unit (32) is arranged to between these sensing occasions control the micromirror matrix unit (16) such that it is not in said first state.

17. An optical system according to claim 15 or 16, comprising means for detecting if the optical system is exposed to scanning or destroying radiation, wherein the control unit (32) is arranged to control the micromirror matrix unit (16) such that said first state is avoided when said means has detected such radiation.

18. An optical system according to claim 17, wherein the control unit (32) is arranged to, when said means has detected such scanning or destroying radiation, control the micromirror matrix unit (16) such that it reflects said incident electromagnetic radiation which reaches the micromirror matrix unit (16) from the first optical unit (10) such that this electromagnetic radiation reaches the second sensor unit (26).

19. An optical system according any of the claims 15-18, wherein the control unit (32) is arranged to individually control the setting of the mirror elements of the micromirror matrix unit (16) in such a manner that the amount of electromagnetic radiation which is reflected by the micromirror matrix units (16) towards the first sensor unit (18) is controlled by the setting of the mirror elements of the micromirror matrix unit (16).

20. A target-seeking system (34) comprising an optical system according to any of the preceding claims.

21. A target-seeking system according to claim 20, wherein this target-seeking system (34) is a target-seeking missile (34).